WELL 8820IP

VoIP Phone User Manual

8820IP Phone User Manual_ SIP(V1.44)

8820IP PHONE USER MANUAL_ SIP(V1.44) 1

- *Appearance:* *4*
- *Features* *5*
- *Standard and Protocol* *6*
- *Operating requirements:* *7*
- *Electric requirements:* *7*
- *Size：* *7*
- *Installation:* *8*
- *Breif Introduction of 8820IP phone* *8*
- *Suitable Uses of 8820IP phone* *9*
- *Function Keys of 8820IP Phone Introduction (Normal State):* *9*
- *Function Keys Introduction:* *10*
- *Operate with the keys* *11*
- *Set the main menu* *12*
- *Set the network submenu* *13*
- *Set the audio submenu* *13*
- *Set the dial plan submenu* *14*
- *Set the protocol menu* *14*
- *Set the other menu* *15*
- *Set the Advanced menu* *15*
- *Configured by WEB* *17*
- *Network Setting：* *18*
- *Audio settings:* *21*
- *Dial Plan settings:* *23*
- *SIP Protocol Setting：* *25*
- *Other settings:* *31*

PA168X SIP PHONE TELNET SETUP GUIDE.....35

- *Telnet Configuration 35*
- *PA168X Telnet Commands Explanation.....36*
- *Command ?.....36*
- *Command get.....37*
- *Command set.....39*
- *Command load.....52*
- *Command write.....52*
- *Command ping.....53*
- *Command ftp.....53*

ø Appearance:

- PA168X SIP Phone Front Illustration (Refer to Fig 1.1):

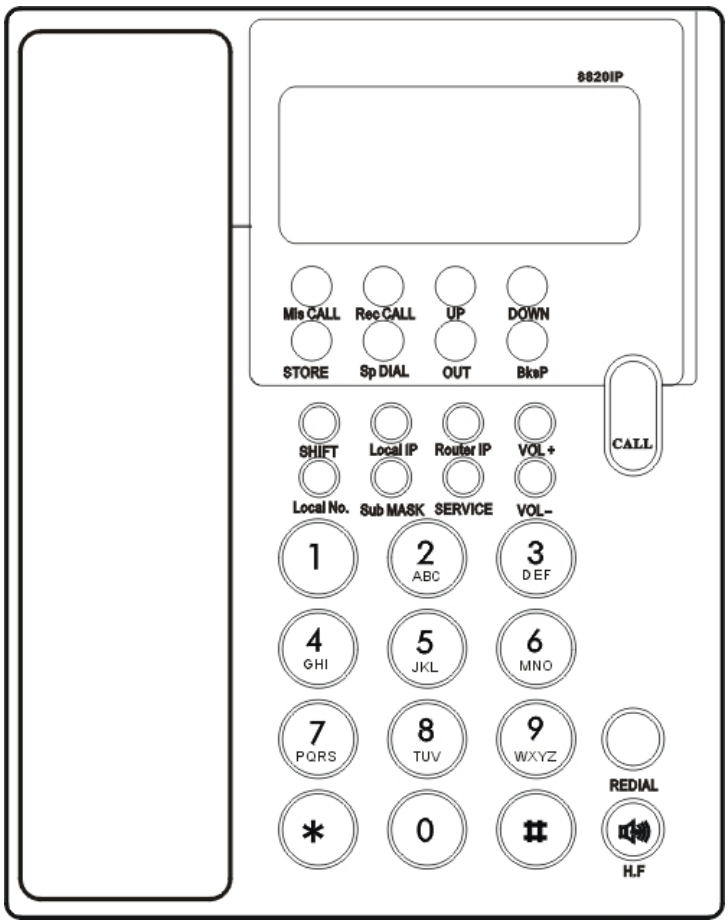


Fig 1.1 PA168X Phone Front Illustration

- PA168X SIP Phone Back Illustrations(Refer to Fig 1.2):

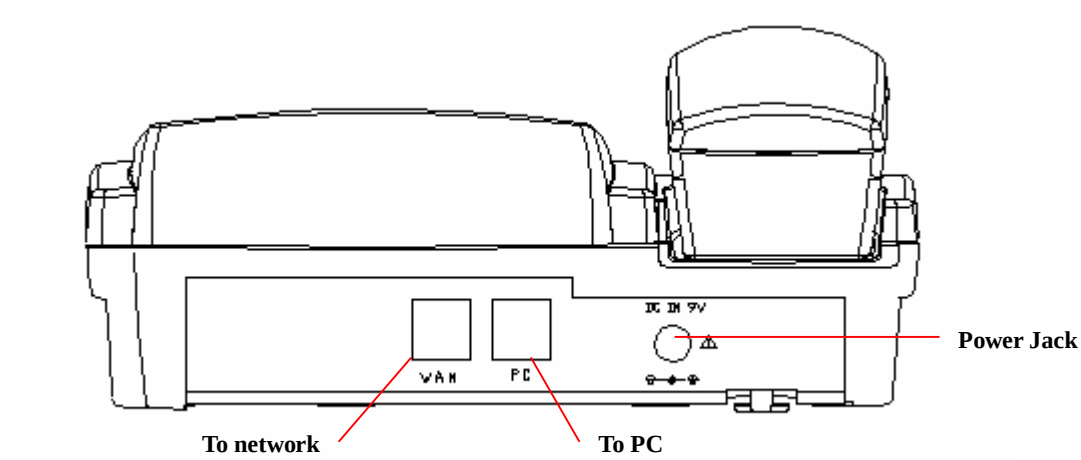


Fig 1.2 PA168X SIP Phone Back Illustration

Ø Features

Ø Hardware

- Main chip—PA1688 50MHz
- Data Memory—2MB SDRAM
- Program Memory—2 MB Flash memory
- Ethernet Port—2X 10/100M Connectors
- AC/DC adapter—Input AC100--- 230V，Output 9V DC, 1A

Ø Software

- DHCP support for LAN or Cable modem
- PPPoE support for ADSL or Cable modem
- Set phone by HTTP web browser or Telnet
- Upgrade by FTP(TFTP optional)
- Support major G.7XX ;GSM610;iLBC audio codec
- VAD(Voice active detect)

- CNG (Comfort noise generation)
- Dynamic voice jitter buffer
- G.167/165 compliant 16ms echo cancellation
- Tone generation and Local DTMF re-generation according with ITU-T
- Support the Inband audio; RFC2833; SIP INFO etc DTMF transmission method
- E.164 dial plan and customized dial rules
- 100 entries for speed dial
- 80 entries each for missed calls, answered calls and dialed calls
- Adjustable volume for both handset and speaker
- Voice prompt
- Hotline
- Support adjustable user password and super password

Ø Standard and Protocol

PA168X SIP Phone supports following standard and protocol:

- IEEE 802.3 /802.3 u 10 Base T / 100Base TX
- Major G.7XX; GSM610;iLBC audio codec
- SIP RFC3261
- TCP/IP: Internet transfer and control protocol
- RTP: Real-time Transport Protocol
- RTCP：Real-time Control Protocol

- VAD/CNG save bandwidth
- DHCP：Dynamic Host Configuration Protocol
- PPPoE：PPP Protocol over Ethernet
- DNS：Domain Name Server
- Telnet：Internet's remote login protocol
- FTP：File Transfer protocol
- TFTP：File Transfer protocol (optional)
- HTTP：Hyper Text Transfer protocol

Ø Operating requirements:

- Operation temperature: 0 to 50° C (32° to 122° F)
- Storage temperature: -30° to 65° C (-22° to 149° F)
- Humidity: 10 to 90% no dew

Ø Electric requirements:

- Voltage: 9V DC
- Power: 9W (max.)
- Power adapter: AC/DC input 100-230V，Output 9V 1A
- Network interface:2X RJ-45 Ethernet Connectors

Ø Size：

200 x 180 x 85 mm (L x W x H)

Ø Installation:

1．Connect handset to base: insert handset cord into handset cord jack at the left side of the base.

2．Connect IP phone to Internet: plug the RJ-45 Ethernet cable into the Ethernet Jack. Plug the other end of the cable into HUB or switch.

3．Power on IP phone: plug the power cord adapter into the Power Jack. Then plug the other end of the power cord adapter into the appropriate wall outlet.

With the installation done, users can chose the telephone keyboard，HTTP or Telnet orders according the preference of each, and set the respective parameters. Details may refer to the related chapters in the manual.

Ø Breif Introduction of 8820IP phone

IP is abbreviation of Internet Protocol. An IP phone is a telephone transporting voice using grouping data package of IP protocol. The networking using IP protocol such as LAN within the enterprise, LAN within a city and Internet work all support using IP phone.

The mostly significant features of IP phone is transporting voice message over data communication network at an extremely low price with excellent sound quality. Using IP phone, you will save dramatically on international calls and long distance calls.

8820 series IP net phone uses unique generalized outline and inner line modes. It functions much like an ordinary telephone switching between inner line and out line, so it supplies great conveniences to the users. When 8820 series IP net phone is in generalized inner line mode, it can call another 8820 series IP net phone worldwide free. When 8820 series IP net phone is in generalized out line mode, it can places calls to ordinary telephones worldwide at a dramatically low price, because 8820 series IP net phone supports using prepaid card supplied by ISP such as Net2phone or eTalk. Moreover, it possesses excellent sound quality just like ordinary phones. 8820IP phone has 2X16 English LCD and supports being set by keypad.

Ø Suitable Uses of 8820IP phone

8820IP Phone is the ideal choice for those who always place international or long distance calls. If two parties both use 8820 serial IP Phone, they can communicate with each other even free.

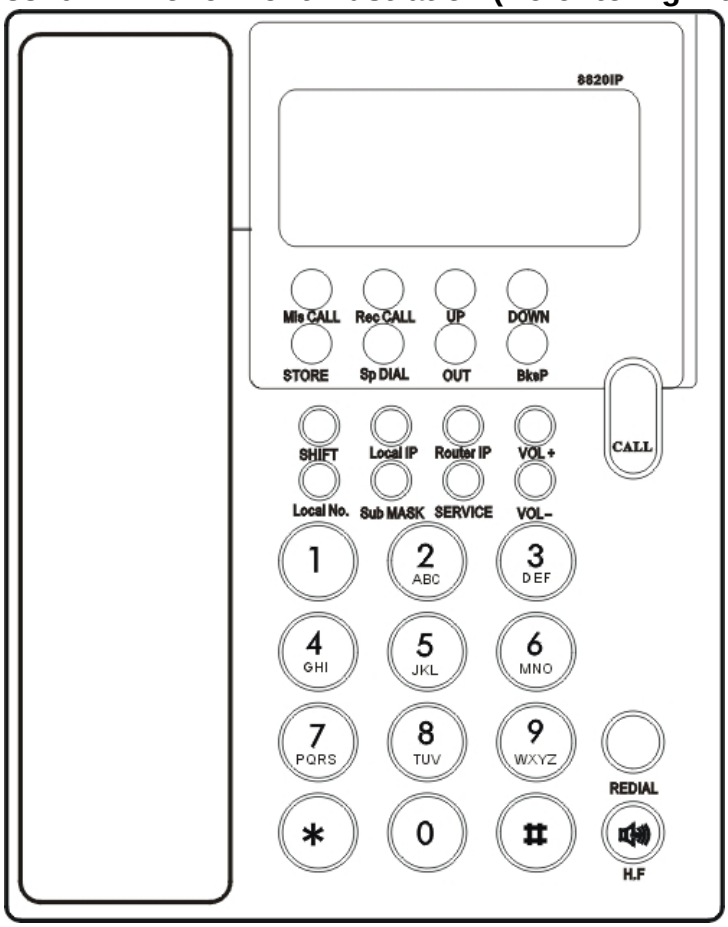
- Telecom Service Provider and Internet Phone Service Provider;
- Foreign capital or joint venture companies; offices, representative offices or agencies all over the world;
- Abroad hotel (Can be arranged at guest rooms or commercial central) ;
- Large enterprises, multinational enterprise (Used for international call and long distance call)
- Middle and small enterprise with import or export business, abroad travel agencies; study abroad or immigrant mid-agencies;
- Departments relating with international affairs, such as foreign trade department, association for friendship with foreign countries, turnvereins, athenaeums, foreign experts bureau and other departments involving foreign affairs
- Colleges and study institutions, such as dorm for abroad students, professors with close connection with foreign countries;
- Families or persons with close connection with foreign countries, such as foreigners in China and those who prepare the study abroad

Ø Function Keys of 8820IP Phone Introduction (Normal State):

Keys	Function
Local No.	With handset hung, press this key to get phone number
Local IP	With handset hung, press this key to get Local IP address of the phone
Router IP	With handset hung, press this key to get Router IP address of the phone
SERVICE	With handset hung, press this key to get Service IP address of the phone
Sub Mask	With handset hung, press this key to get Subnet IP address of the phone
OUT	With handset hung, press this key to review dialed calls
BksP	Edit the inputting data or return to ideal mode
SHIFT	Change the input mode
UP	Up reviewing
DOWN	Down reviewing
REDIAL	While reviewing missed calls, answered calls or dialed calls, press this key to dial current number
H.F.	Press this key to have a call without lifting the handset
Sp DIAL	Dial speed dial number
CALL	Call other IP phone log on the server with same protocol
STORE	Save speed dial number
Rec CALL	With handset hung, press this key to review answered calls

Mis CALL	With handset hung, press this key to review missed Calls
VOLUME+	Increase the volumes of handset or speaker; turn over the record backward
VOLUME-	Decrease the volumes of handset or speaker; turn over the record forward

8820 IP Phone Front Illustration (Refer to Fig 1.0):



When 8820IP phone has been installed properly, you can enter the menu through the keyboard and LCD, and then set each parameter accordingly.

Ø Function Keys Introduction:

When using keyboard and LCD to configure the settings of IP phone, following keys will be employed:

Keys	Function	Keys	Function
Local IP	Enter edit mode	**H.F.**	Enter submenu; confirm change

Vol＋	Turn over menu backward	**Vol -**	Turn over menu forward; move cursor backward; Delete input
Keypads	Modify values	**REDIAL**	Exit current menu; exit setting mode

Ø Operate with the keys

- **Enter the menu mode**

Press “H.F” key, and then use the keyboard to enter the password of the phone (when debug is not set as 0[disable], default password is 1234; when debug is set as 0[disable], please use super password 12345678), Secondly, Press “H.F” key to confirm, 8820IP phone will enter the menu mode.

- **Select the submenu**

After entering the main menu, press “VOL+” or “VOL-” to page the menu up or page the menu down; when you want to set the submenu item to be displayed, press “H.F” to enter the submenu.

- **Enter the EDIT mode**

After entering the submenu, when you want to set the submenu item to be selected, press “Local IP” to enter EDIT mode.

- **Enter the settings**

Once the phone enters EDIT mode, enter the settings by numeric keypad respectively, then press “H.F” key to confirm.

- **Modify enter error**

If the errors come forth when you enter the settings, press “VOL-” key to delete it and enter the settings again

- **Abort the settings**

If there is no need for the modified settings, press “Redial” key to return to the main menu, and press “VOL+” or “VOL-” to page the menu up or page the menu down; When “exit settings” submenu item is selected, press “H.F” key to confirm, 8820IP phone will reboot and be used the current settings.

- **Save the settings**

When all parameters have modified, press “Redial” key to return to the main menu, and press “VOL+” or “VOL-” to page the menu up or page the menu down; When “save settings” submenu item is selected, press “H.F” key to confirm, 8820IP phone will reboot and use the already modified setting.

Ø Set the main menu

- **Main Menu Structure**

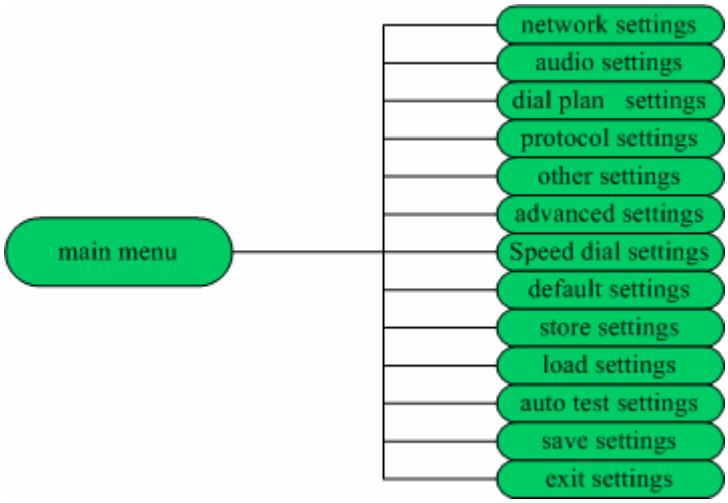


Fig 1.1 Main Menu structure Illustration

Ø Set the network submenu

- **Network Submenu Structure**

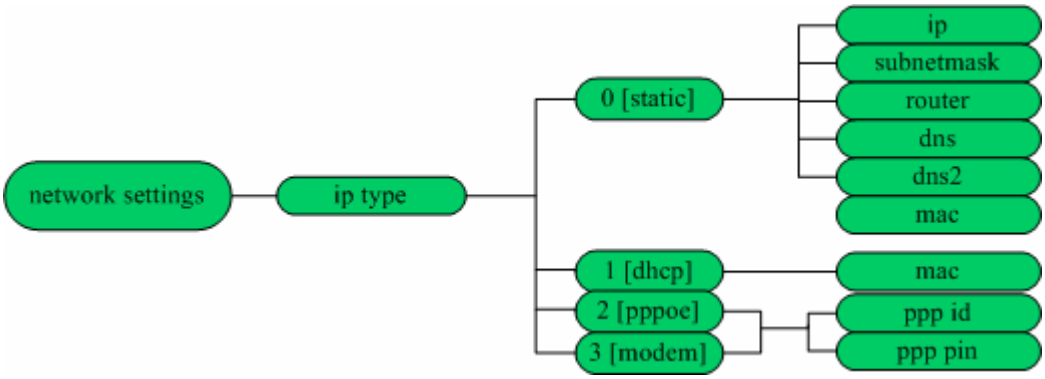


Fig 1.2 Network submenu structure Illustration

Ø Set the audio submenu

- **Audio Submenu Structure**

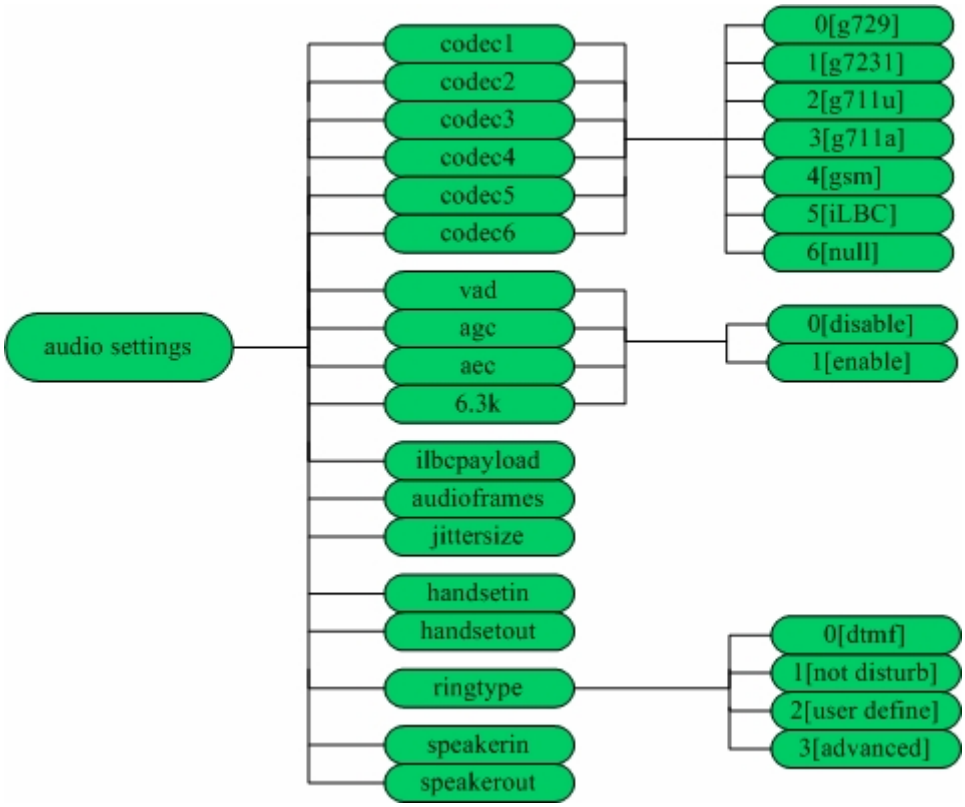


Fig 1.3 Audio submenu structure Illustration

Ø Set the dial plan submenu

- **Dial plan submenu Structure**

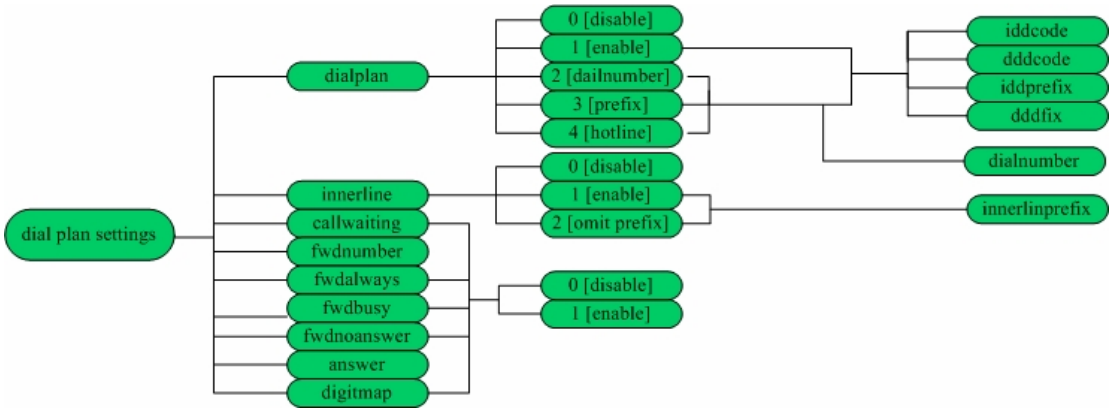


Fig 1.4 Dial plan submenu structure Illustration

Ø Set the protocol menu

- **Protocol Submenu Structure**

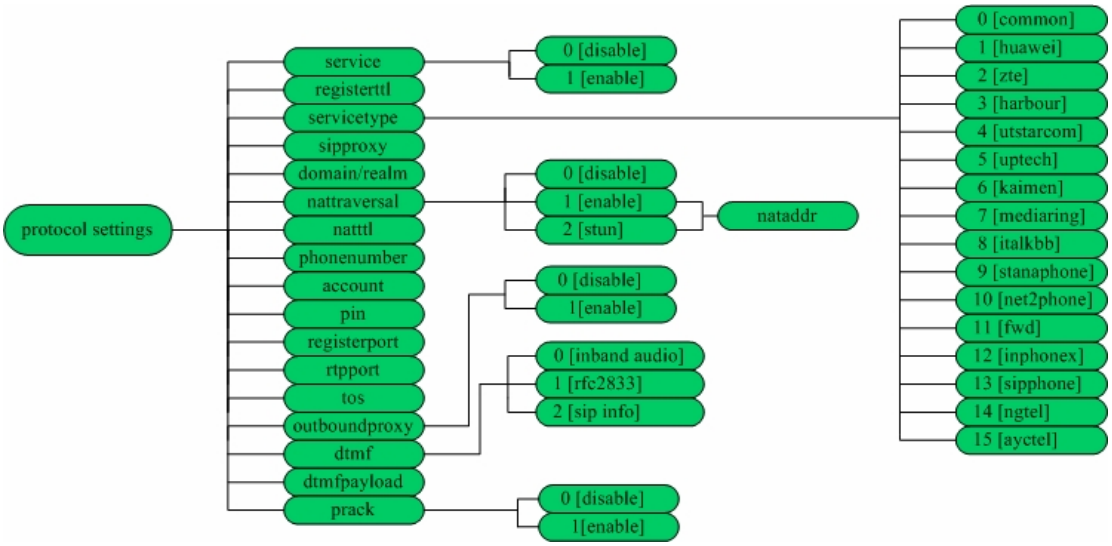


Fig 1.5 Protocol submenu structure Illustration

Ø Set the other menu

- **Other Submenu Structure**

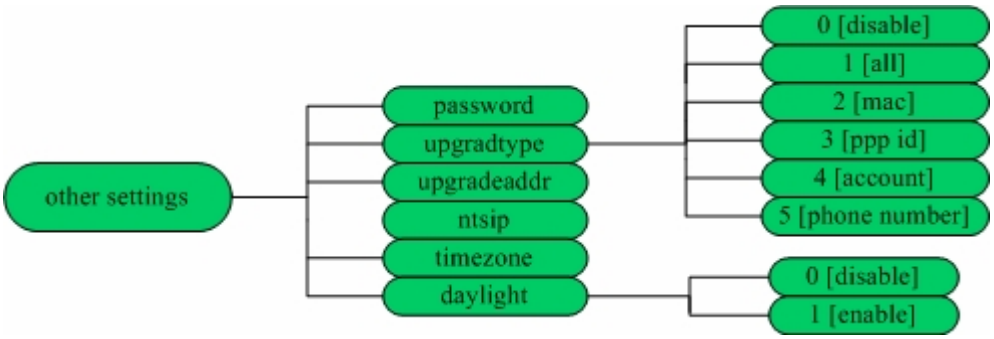


Fig 1.6 other submenu structure Illustration

Ø Set the Advanced menu

- **Advanced Submenu Structure**

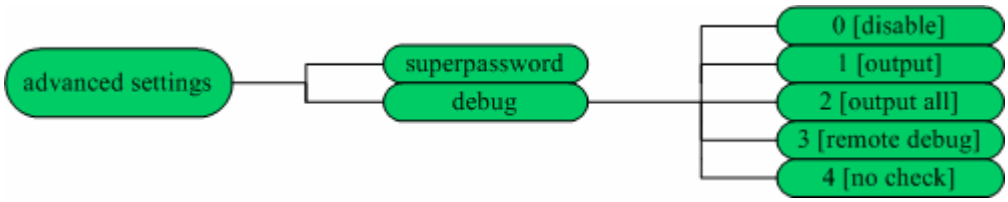


Fig 1.7 advanced submenu structure Illustration

Appendix Table： PA168X IP phone digital-character key map:

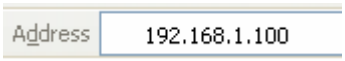
Keys	Press Once	Press Twice	Press Thrice	Press quartic	Press quintic
1	1	.	,	?/_	!//
2	2	A/a	B/b	C/c	[
3	3	D/d	E/e	F/f	]
4	4	G/g	H/h	I/i	*
5	5	J/j	K/k	L/l	
6	6	M/m	N/n	O/o	#
7	7	P/p	Q/q	R/r	S/s
8	8	T/t	U/u	V/v	
9	9	W/w	X/x	Y/y	Z/z
*****	.				
0	0	space	:/@	;/-	\ /&
#	Case change				

PA168X SIP Phone Http Setup Guide

When PA168X SIP phone is properly installed, you can set each parameters through PC and Web browser.

Details please refter to 《Pa168X SIP phone Spec and Install》

Ø Configured by WEB

Double click icon to open the IE browser. Input the IP address of the phone into address bar (

), and then input password of the phone into the following page.

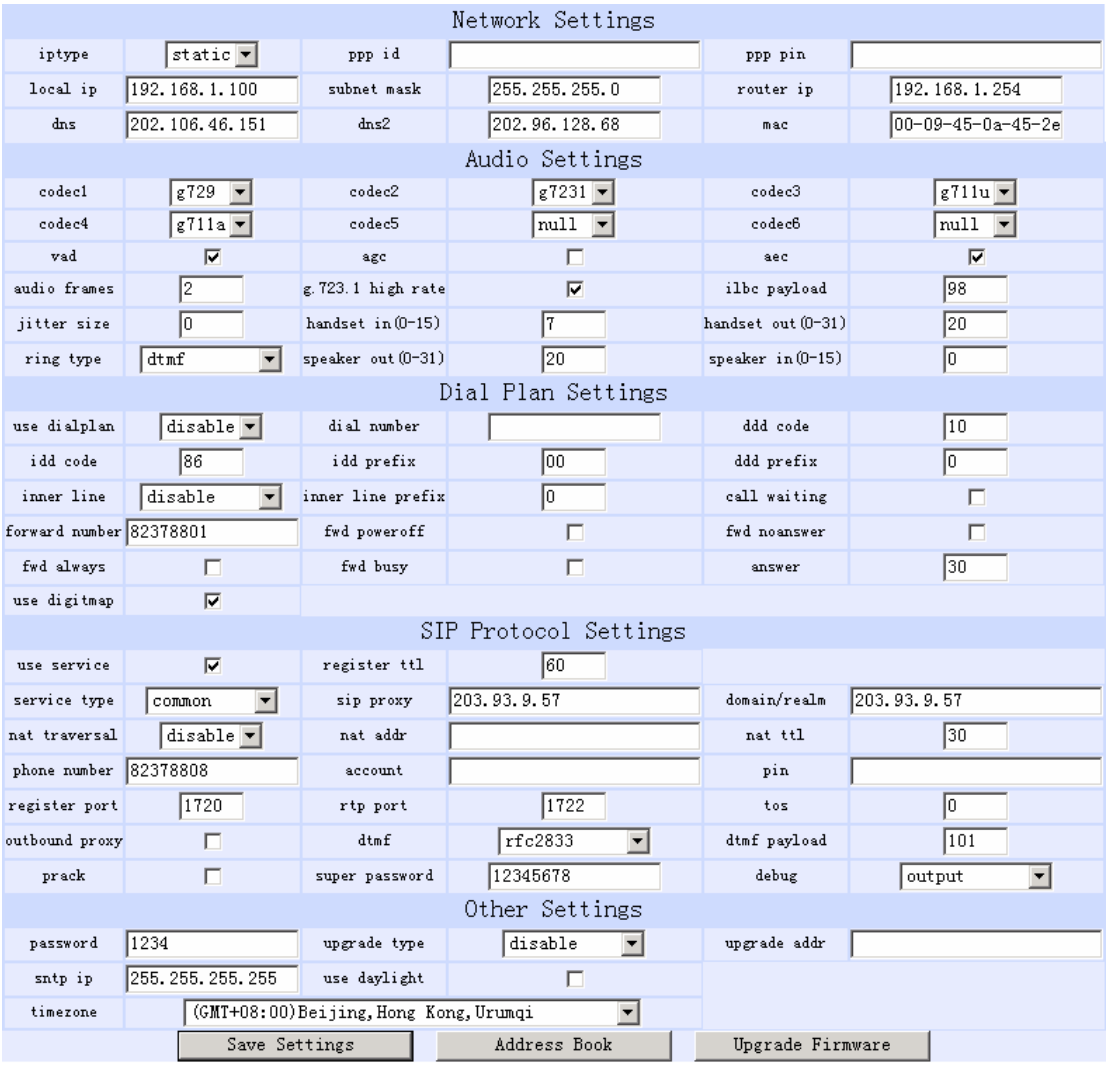

Network Settings
iptype static ppp id ppp pin
local ip 192.168.1.100 subnet mask 255.255.255.0 router ip 192.168.1.254
dns 202.106.46.151 dns2 202.96.128.68 mac 00-09-45-0a-45-2e
Audio Settings
codec1 g729 codec2 g7231 codec3 g711u
codec4 g711a codec5 null codec6 null
vad agc aec
audio frames 2 g.723.1 high rate ilbc payload 98
jitter size 0 handset in(0-15) 7 handset out(0-31) 20
ring type dtmf speaker out(0-31) 20 speaker in(0-15) 0
Dial Plan Settings
use dialplan disable dial number ddd code 10
idd code 86 idd prefix 00 ddd prefix 0
inner line disable inner line prefix 0 call waiting
forward number 82378801 fwd poweroff fwd noanswer
fwd always fwd busy answer 30
use digitmap
SIP Protocol Settings
use service register ttl 60
service type common sip proxy 203.93.9.57 domain/realm 203.93.9.57
nat traversal disable nat addr nat ttl 30
phone number 82378808 account pin
register port 1720 rtp port 1722 tos 0
outbound proxy dtmf rfc2833 dtmf payload 101
prack super password 12345678 debug output
Other Settings
password 1234 upgrade type disable upgrade addr
sntp ip 255.255.255.255 use daylight
timezone (GMT+08:00)Beijing,Hong Kong,Urumqi
Save Settings Address Book Upgrade Firmware

Fig 1.1 Http Setting

Default password 1234 is ordinary password and super password is 12345678. With Debug set 0[disable], please input super password; while Debug is not set as 0[disable], please input ordinary password. Then click login button. The following configured page wills popup.

Ø Network Setting：

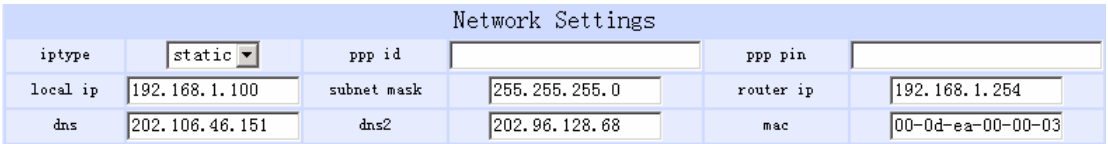

Network Settings
iptype static ppp id ppp pin
local ip 192.168.1.100 subnet mask 255.255.255.0 router ip 192.168.1.254
dns 202.106.46.151 dns2 202.96.128.68 mac 00-0d-ea-00-00-03

Fig 1.2 Network Setting

- iptype: Set how IP phone gets relevant network parameters by selecting corresponding item from drop down list.

  - static ip: Select this item to authorize users set IP address, subnet mask and router IP address of IP phone manually.

  - dhcp: Select this item to enable DHCP mode. With this system, your LAN or router automatically assigns all the required network parameters to any device connected to it when the device log on. PA168X IP phone is shipped from the factory with DHCP on. So, if your LAN or router is configured to use DHCP addressing, the IP phone's LAN parameters will automatically be configured as soon as it is connected to the LAN or router and powered up.

  - pppoe：Those ADSL and Cable Modem users please select this item for it is a protocol especially designed for them. With this system, ADSL ISP automatically assigns all the required IP parameters to any device connected to it when the device log on.

  - modem：If the IP phone used with modem, please select this item to get relevant network parameters auto. Then please fill ID and pin into ppp id and ppppin fields.

- ppp id: With pppoe or modem selected in iptype drop down list, please enter the user name here.

- ppp pin: With pppoe or modem selected in iptype drop down list, please enter the password here.

- local ip: With static ip selected in iptype drop down list, please enter IP address of IP phone here.

- subnet mask: With static ip selected in iptype drop down list, please enter subnet mask of IP phone here.

- router ip: With static ip selected in iptype drop down list, please enter router IP address of IP phone here.

- dns: With static ip selected in iptype drop down list, please enter IP address of DNS server here.

- dns 2: With static ip selected in iptype drop down list, please enter IP address of backup DNS server here.

- mac: MAC address is the physical address supplied by the Ethernet NIC. PA168X phone is shipped from the factory with a unique algorism MAC address printed on the back of the base.

Ø Audio settings:

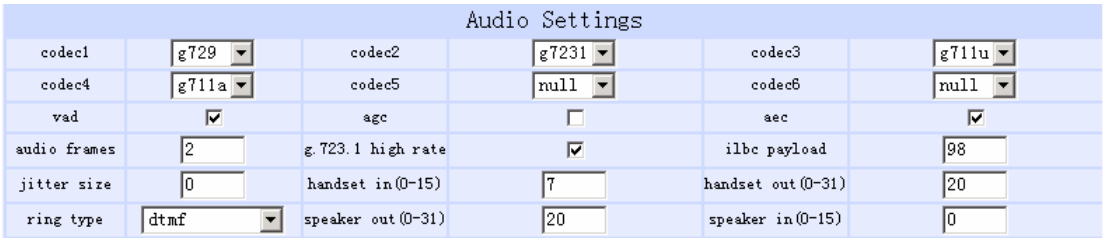


Fig 1.3 Audio Setting

- codec1: Set the priority 1 of the audio compression algorithm. The options are g729 , g7231 , g711u , g711a , gsm, ilbc and null.

- codec2: Set the priority 2 of the audio compression algorithm. The options are g729 , g7231 , g711u , g711a , gsm, ilbc and null.

- codec3: Set the priority 3 of the audio compression algorithm. The options are g729 , g7231 , g711u , g711a , gsm, ilbc and null.

- codec4: Set the priority 4 of the audio compression algorithm. The options are g729 , g7231 , g711u , g711a , gsm, ilbc and null.

- codec5: Set the priority 5 of the audio compression algorithm. The options are g729 , g7231 , g711u , g711a , gsm, ilbc and null.

- codec6: Set the priority 6 of the audio compression algorithm. The options are g729 , g7231 , g711u , g711a , gsm, ilbc and null.

- vad: Enable/disable VAD (voice activity detection).

- agc: Enable/disable AGC.

- aec: Enable/disable VEC.

- audio frame: Set audio frames in RTP package. Minimum is 1 and maximum is 8.

- g.723.1 high rate: enable/disable g.723.1 high rate. G.723.1 high rate is 6.3kbps, low rate is 5.3kbps.

- ilbc payload : Set the payload type of RTP package whne ILBC codec selected to DTMF delay. The value range is 96-255.

- jitter size : Set buffer size of RTP package. The value range is 0-32.

- handset in: Set the volume of handset input.

- handset out: Set the volume of handset output.

- ring type: Set ring type by selecting corresponding item from drop down list.

  - dtmf : Set ring as ordinary rings in different frequency

  - not disturb: Set the phone do not ring by selecting this item.

  - user define：Set ring as music saved by user by selecting this item.

- Advanced: Set ring used the individualized tone provided by system (need system support).

- speaker out: Set the volume of handfree output.

- speaker in: Set the volume of handfree input.

Ø Dial Plan settings:

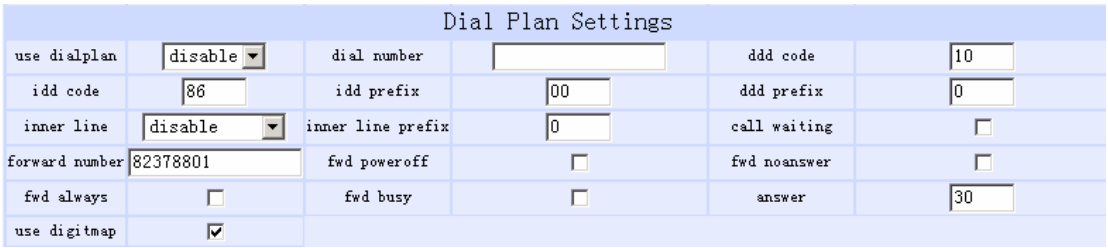


Fig 1.4 Dial Plan Setting

- use dialplan: Set whether use dial plan or use dial number by selecting the corresponding item in drop down list.

  - disable: Do not use dial plan or dial number by selecting this item.
  - enable: Use dial plan by selecting this item.
  - dialnum: Use dial number by selecting this item. With this item selected, please enter the dial prefix into dial number field.
  - prefix: Use specially service by selecting this item.
  - Hotline: Use Hotline function by selecting this item. With this item selected, please enter the hotline number into dial number field.

- dial number: With dialnum selected in use dialplan drop down list,

please enter the dial prefix into this field according to requirement of log in server.

- ddd code: With enable or dialnum selected in use dialplan drop down list, set area code according to E.164 dial rule. For example, Beijing is 10; Shanghai is 21.
- idd code: With enable or dialnum selected in use dialplan drop down list, set country code according to E.164 dial rule. For example, China is 86; U.S.A is 1.
- idd prefix: With enable or dialnum selected in use dialplan drop down list, set international call prefix according to E.164 dial rule, such as 00.
- ddd prefix: With enable or dialnum selected in use dialplan drop down list, set long distance call prefix according to E.164 dial rule, such as 0.

✎**Note** With **dialnum** seletcted in use **dialplan** drop down list, you can also set dddcode, iddcode, iddprefix and dddprefix according to requirement of system.

- innerline: Enable/disable innerline call by selecting corresponding items from dropdown list.
  - disable: Disable call innerline by selecting this item.
  - enable: enable call innerline by selecting this item.
- innerlineprefix: With enable selected in innerline dropdown list, please fill the prefix number pick up to inner line, such as 0.

- Call waiting: Enable/disable call waiting by checking/unchecking the box.

- forward number: Enter receiving forwarded calls phone number into this field; If the IP phone used with modem, with modem item selected in iptype list box, and then fill ISP number into this field.

- fwd noanswer: Forward calls without replying by checking this box. Please enter receiving forwarded calls phone number into fwd number field.
- fwd always: Forward all calls by checking this box. Please enter receiving forwarded calls phone number into fwd number field.
- fwd busy: Forward calls if busy by checking this box. Please enter receiving forwarded calls phone number into fwd number field.

- answer: Enter a number from 0 through 60 to set the entries of the seconds before the phone answer the call auto or forward the calls.

- Use digitmap: Enable/disable digit map by checking/unchecking the box.

Ø SIP Protocol Setting：

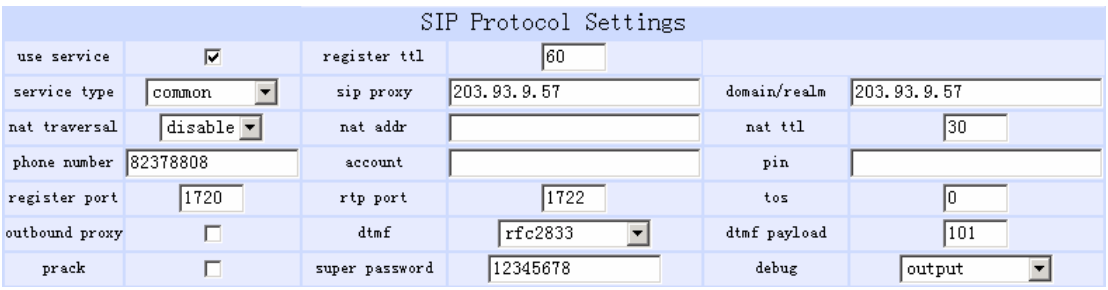


Fig 1.5 SIP Protocol Setting

- use service: Enable/disable service by checking/clearing this box. To make calls through SIP Proxy Server, please check this box; otherwise, phone can only make IP-to IP calls.

- register ttl : IP phone will send a keep-alive registration message to SIP proxy server every “register ttl” seconds. The minimum value is 10, maximum value is 65535. Default is 60.

- service type: This option is used to accommodate the miscellaneous requirements of the system providers.

  - Common: no special requirements
  - Huawei: Use Huawei’s system
  - zte: Use ZTE’s SIP system
  - harbour: Use Harbour’s system
  - utstarcom: Use UtstarCom’s SIP system
  - uptech: Use Uptech’s system
  - keimen: Use Keimen’s system
  - mediaring: Use Mediaring’s SIP system
  - italkbb: Use ItalkBB’s SIP system

- § stanaphone: Use Stanaphone's SIP system
- § net2phone: Use Net2phone's SIP system
- § Fwd: Free SIP service; please visit www.freeworldialup.com for more information.
- § Inphonex: Free SIP service; please visit www.inphonex.com for more information.
- § sipphone: Free SIP service ; please visit www.sipphone.com for more information.
- § ngtel: Use NGTEL's SIP system
- § ayctel: Use Ayctel's SIP system
- § callserve: Use Callserve's SIP system
- § qmaster: Use Qmaster's SIP system

- sip proxy: If "use service" is checked, please set the URI of SIP proxy server .
- domain/realm: Set the domain name of the SIP proxy server .
- nat traversal: When the IP phone with private IP address need communicate with other IP phones in a different LAN or on Internet,

please select an item from dropdown list.

- disable: Select this item when the sip proxy server and IP phone in the same LAN, or the sip proxy system supports the IP phone working behind the LAN.

- enable: When the system does not support IP phone working behind the LAN, please select this item to search public IP address of the NAT device. With this item selected, “nat addr” field will be activated. Besides, port mapping (port forwarding) needs to be properly set up on NAT device.

- stun: Select this item with Stun server used according to requirement of system. With this item selected, nat addr field is activated.

- nat addr: When “nat traversal” is set to “enable”, please put the domain name of the servers (These web server helps to find out the public IP of the NAT device) into “nat addr”, such as www.whatismyip.com.

When “nat traversal” is set to “stun”, please put the URI of the stun server into “nat addr”, in the format as “domain name/IP address : service port”. The default service port for stun is 3478.

- nat ttl: When IP phone sit behind a NAT device, it will send packets to server every “nat ttl” seconds to keep the port mapping on the NAT

device alive. “nat ttl” is an integer between 10 and 65535, default value is 20.

- phone number: The local phone number or username of this phone, usually is allocated by system.

- account: With SIP system which requires authentication, please put the username/account into this field.

- pin: With SIP system which requires authentication, please put the password into this field.

- register port: The local UDP port registered with server to accept incoming handshaking messages. The default port number is 5060.

- rtp port: RTP port is the port transferring and receiving voice packets using UDP protocol. This is an even number between 1024 and 65535.

- tos: Set the TOS field of the IP header of the RTP packets. The bigger this value is 0, the higher priority the packet is 224.

- outbound proxy : Enable/disable Outbound proxy by checking/clearing this box. If the system has an Outbound Proxy , please set the URI of the Outbound proxy into “sip proxy” and set the domain name of SIP proxy server into “domain/realm”. The default service port is 5060.

- dtmf: Set DTMF signal sending way by selecting inband audio, rfc 2833 and sip info from list box.

- dtmf payload : When DTMF select rfc 2833.This parameter can be used indicating type of RTP payload type. The value can be use integer 96-101.

- prack: Enable/disable support pre-ack(RFC3262) by checking/clearing this box.

- super password: Set the super password of the phone.(Default super password is 12345678).
- debug: Set the debug level of the phone.
  - disable: Disable output the debug message by selecting this item.
  - output: Output the operation information to the window, such as register, input by selecting this item.
  - output all: Output all debug information and data in test window by selecting this item.
  - remote debug: Save the debug information in SDRAM of IP phone by selecting this item.
  - no check: Disable checking firmware tags when upgrading. This is not suggested, because it will increase the risk of upgrading the wrong firmware into the phone.

Ø Other settings:

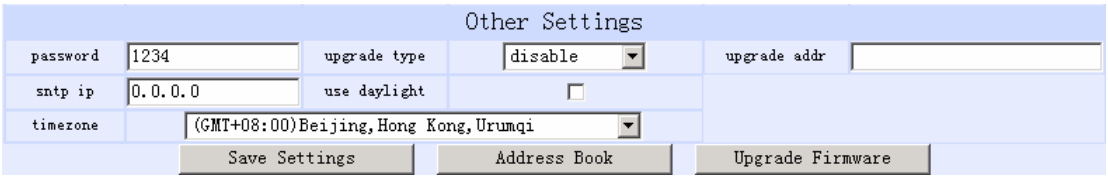


Fig 1.6 Other Setting Page

- password: Set the password of the phone. (Default password is 1234).
- upgradetype: Set the auto-upgrade type of the phone.
  - n disable : Disable auto-upgrade .
  - n all: pa168X phone will find matching firmware binary file and configuration file of the hardware type only at the FTP server specify by upgradeaddr item .
  - n mac: pa168X phone will find matching firmware binary file and configuration file of the MAC address only at the FTP server specify by upgradeaddr item .
  - n ppp id: pa168X phone will find matching firmware binary file and configuration file of the ppp id only at the FTP server specify by upgradeaddr item .
  - n account: pa168X phone will find matching firmware binary file and configuration file of the account only at the FTP server specify by upgradeaddr item .
  - n phonenumber: pa168X phone will find matching firmware binary file

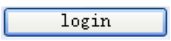
and configuration file of the phone only at the FTP server specify by upgradeaddr item .

- upgrade addr: Put IP address or domain name obtained by ISP of FTP server supplying upgrade program into this field.

- sntp ip: Fill IP address of time server here. When network without Internet connect, Fill special IP address 255.255.255.255.

- use daylight: Enable/disable daylight.

- timezone: Select correct time zone in list box.

When debug set as 0[disable], if input ordinary password (default one is 1234), then following page will pop up after clicking 

. And only those parameters can be modified.

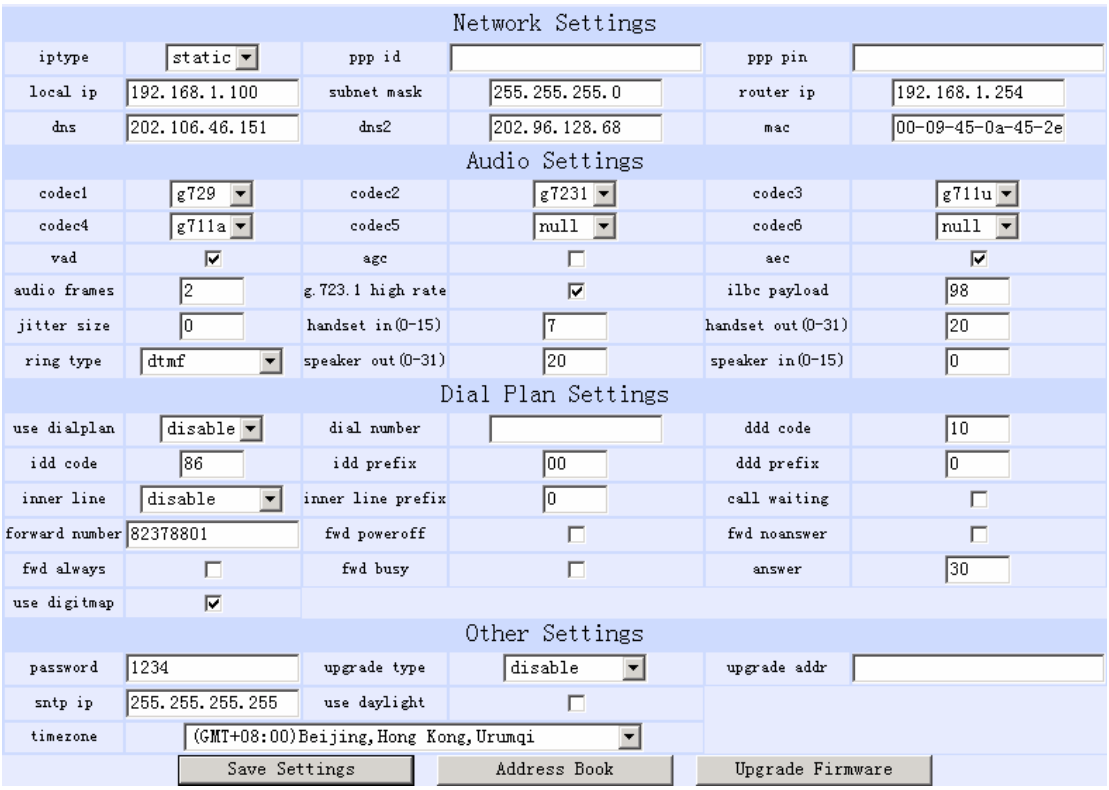


Fig 1.7 Setting Page using ordinary pin with Debug set as 0 [disable]

- Save Settings : Click this button to save the configuration and the phone will reboot. Once the phone reboots successfully, the new configuration is effective.

✎**Note** After entering set page, if **save settings** button is not clicked within 10 minutes, then when you click it again, the index page asking for pin will pop up again. Then please input the password again to enter the set page and then click **save settings** button to confirm the modification.

- Adress Book: Click this button to open the speed dial settings page. Please refer to Fig 3.7. In this page, you can set and save the speed dial number by typing the name into the Name field and then entering the corresponding number following the name. For example, input Jack in

Name field following 001, and then input 5989426454 into Phone number field. Then Jack's number 5989426454 is saved in phone book. Then please click Save/Back button. In normal state, you can use speed dial to call numbers saved in phone book.

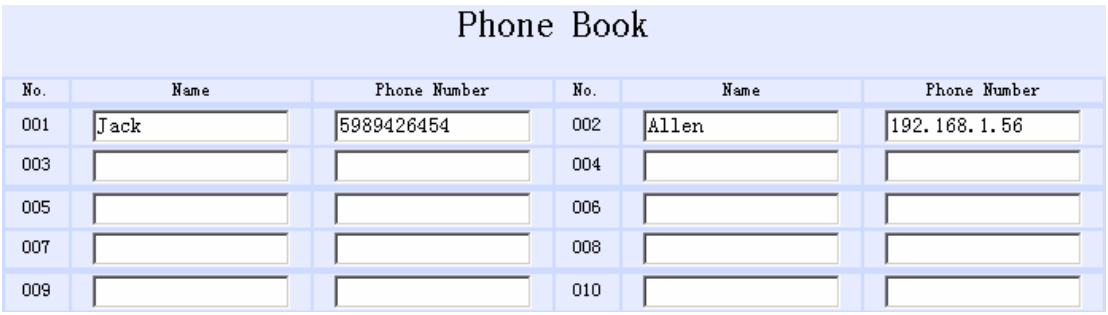


Fig 1.8 Phone Book Illustration

- Upgrade Firmware: Click this button to update the program ,the settings and the digitmap of IP phone.

PA168X SIP Phone Telnet Setup Guide

When PA168X SIP phone is properly installed, you can set each parameters through PC and Telnet commands.

Details please refter to 《PA168X SIP phone Spec and Install》

Ø Telnet Configuration

- On the PC choose Start>Run, and then type telnet 192.168.1.100 into Run field in popuping Run dialog. Or input telnet 192.168.1.100 in the DOS window. Then the following information will be displayed.

PA168X V1.44 settings
Password :

Then please type password. With debug is set as 0[disable], if type ordinary password (default one is 1234), after Retun, you will see：

Password : **
P:\>

If you type super password, then you will see:

Password : ******
P:\>**

Above information indicates that IP phone is under setting mode, and then you can set the PA168X IP phone by using the telnet commands.

Ø PA168X Telnet Commands Explanation

Command	Function
?	Supply command name and parameters
get	Display basic parameters of the PA168X IP phone
set	Set parameters of the PA168X IP phone
store	Save current settings to designated position
load	Load designated settings to current position
exit	Exit from the setting mode without saving the configuration
write	Exit with saving all configurations and restart PA168X
ping	Ping other net parameter
ftp	The phone connects to FTP server and then get the files

Ø Command ?

Syntax description: No optional parameter

Usage: Type command name and parameters following P:\> . Be used as the keyword to supply keyword and parameters of the relevant commands.

Relevant usage: None

Detailed description:

? List help of all commands

For example:

```
P:\>?
set
get                 list settings
store x             store current to xth settings
load x              load xth settings to current
exit
write               save settings
```

Ø Command get

Syntax description: No optional parameter of keywords

Usage: Display basic parameters of the PA168X IP phone

Relevant usage: None

Detailed description:

get Display basic running parameters of the PA168X IP phone. Input ordinary password without debug being set as 0[disable], or input super password with debug set as 0[disable], then following parameters of IP phone will be displayed:

```
PA168X V1.44 settings
Password: ********
P:\>get
***************Network Settings***************
iptype 0[static]
ip 192.168.1.100            subnetmask 255.255.255.0    router 192.168.1.254
dns 202.106.196.152         dns 2202.106.196.115        mac    00-09-45-65-a3-e6
***************Audio Settings***************
codec1 0[g729]              codec2 1[g7231]                 codec3 2[g711u]
codec4 3[g711a]             codec5 6[null]                  codec6 6[null]
vad 1[enable]               agc 0[disable]                  aec 1[enable]
audioframes 2               6.3k 1[enable]                  ilbcpayload 98
jittersize 0                handsetin 7                     handsetout 20
ringtype 0[dtmf]            speakerout 20                   speakerin 0
***************Dial Plan Settings***************
```

```
dialplan 1[enable]          dddcode 10
iddcode 86                  iddprefix 00                    dddprefix 0
innerline 1[enable]         innerlineprefix 0               callwaiting 1[disable]
fwdnumber 82378009          fwdpoweroff 1[enable]
fwdalways 1[enable]         fwdbusy 1[enable]         fwdnoanswer 1[enable]
answer 30       digitmap 1[enable]
***************Protocol Settings***************
service 1[enable]           registerttl 60
servicetype 0[common]       sipproxy 203.93.9.57      domain/realm 203.93.9.57
nattraversal 0[disable]
nataddr [empty]             natttl 30
phonenumber 82378808        account [empty]                 pin [empty]
registerport 1720           rtpport 1722                    tos 0
dtmfpayload 101             dtmf 1[rfc2833]
prack 0[disable]            outboundproxy 0[disable]
***************Other Settings***************
superpassword 12345678      debug 1[output]
password 1234               upgradetype 0[disable]
upgradeaddr [empty]
sntpip 0.0.0.0              daylight 0[disable]
timezone 55[(GMT+08:00)Beijing,Hong Kong,Urumqi]
```

Input ordinary password with debug set as 0[disable], following information will be seen:

```
PA168X V1.44 settings
Password:****
P:\>get
***************Network Settings***************
iptype 0[static]
ip 192.168.1.100        subnetmask 255.255.255.0        router 192.168.1.254
dns 202.106.46.151      dns2 202.96.128.68              mac 00-0d-ea-00-00-03
***************Audio Settings***************
codec1 0[g729]              codec2 1[g7231]             codec3 2[g711u]
codec4 3[g711a]             codec5 6[null]              codec6 6[null]
vad 1[enable]               agc 0[disable]              aec 1[enable]
audioframes 2               6.3k 1[enable]              ilbcpayload 98
jittersize 0                handsetin 7                 handsetout 20
ringtype 0[dtmf]            speakerout 20               speakerin 0
***************Dial Plan Settings***************
```

dialplan 1[enable] dddcode 10
iddcode 86 iddprefix 00 dddprefix 0
innerline 1[enable] innerlineprefix 0 callwaiting 1[disable]
fwdnumber 82378009 fwdpoweroff 1[enable]
fwdalways 1[enable] fwdbusy 1[enable] fwdnoanswer 1[enable]
answer 30 digitmap 1[enable]
*****************Other Settings*****************
password 1234 upgradetype 0[disable]
upgradeaddr [empty]
sntpip 0.0.0.0 daylight 0[disable]
timezone 55[(GMT+08:00)Beijing,Hong Kong,Urumqi]

Ø Command set

Syntax description: set keywords value

Usage: Used to configure password and other running parameters of PA168X IP phone.

Detailed description:

set iptype X

Set how IP phone gets relevant network parameters. X ranged from 0 through 3: 0: authorize users set IP address, subnet mask and router IP address of IP phone manually; 1: use DHCP mode. With this system, your LAN or router automatically assigns all the required network parameters to any device connected to it when the device log on. PA168X IP phone is shipped from the factory with DHCP on. So, if your LAN or router is configured to use DHCP addressing, the IP phone's LAN parameters will automatically be configured as soon as it is connected to the LAN

or router and powered up; 2: use PPPoE mode. Those ADSL and Cable Modem users please select this item for it is a protocol especially designed for them. With this system, ADSL ISP automatically assigns all the required IP parameters to any device connected to it when the device log on; 3: use modem mode. Those who use IP phone with modem, please set the value as 3.

set pppid XXX

With iptype set as 2, use this command to set ADSL ID; with iptype set as 3, use this command to set Modem ID.

set ppppin XXX

With iptype set as 2, use this command to set ADSL pin; with iptype set as 3, use this command to set Modem pin.

set ip XXX.XXX.XXX.XXX

With iptype set as 0, use this command to set IP address of PA168X IP phone.

set subnetmask XXX.XXX.XXX.XXX

With iptype set as 0, use this command to set subnet mask of PA168X IP phone.

set router XXX.XXX.XXX.XXX

With iptype set as 0, use this command to set router IP of network with PA168X IP phone.

set dns XXX.XXX.XXX.XXX

With iptype set as 0, use this command to set IP address of DNS server.

set dns2 XXX.XXX.XXX.XXX

With iptype set as 0, use this command to set IP of backup DNS server.

set mac XX-XX-XX-XX-XX-XX

Set MAC address of the PA168X IP phone. Parameter xx-xx-xx-xx-xx-xx must be an HEX number.

---

set codec1 X

Set the priority 1of the audio compression algorithm. X is range from 0 through 4: 0: g729; 1:g7231; 2: g711u; 3: g711a; 4: gsm; 5: ilbc; 6: null.

set codec2 X

Set the priority 2 of the audio compression algorithm. X is range from 0 through 4: 0: g729; 1:g7231; 2: g711u; 3: g711a; 4: gsm; 5: ilbc; 6: null.

set codec3 X

Set the priority 3 of the audio compression algorithm. X is range from 0 through 4: 0: g729; 1:g7231; 2: g711u; 3: g711a; 4: gsm; 5: ilbc; 6: null.

set codec4 X

Set the priority 4 of the audio compression algorithm. X is range from 0 through 4: 0: g729; 1:g7231; 2: g711u; 3: g711a; 4: gsm; 5: ilbc; 6: null.

set codec5 X

Set the priority 5 of the audio compression algorithm. X is range from 0 through 4: 0: g729; 1:g7231; 2: g711u; 3: g711a; 4: gsm; 5: ilbc; 6: null.

set codec6 X

Set the priority 6 of the audio compression algorithm. X is range from 0 through 4: 0: g729; 1:g7231; 2: g711u; 3: g711a; 4: gsm; 5: ilbc; 6: null.

set vad X

Enable/disable VAD. X is ranged from 0 through 1: 0: disable VAD; 1: enable VAD.

set agc X

Enable/disable AGC. X is ranged from 0 through 1: 0: disable AGC; 1: enable AGC.

set aec X

Enable/disable AEC. X is ranged from 0 through 1: 0: disable AEC; 1: disable AEC.

set audioframes X

Set audio frames in RTP package. X is Arabic numerals between

0 and 7.

set 6.3k X

With G.7231, set PA168X IP phone to use 6.3K rate or not. X is ranged from 0 through 1: 0: use 6.3K rate; 1: use 5.3K rate.

set jittersize X

Set buffer size of RTP package. X is range from 0-32.

set ilbcpayload X

Set the payload type of RTP package whne ILBC codec selected to DTMF delay.X is range from 96-255.

set handsetin X

Set initial volume of handset. X is ranged from 0 through 15.

set handsetout X

Set initial volume of handout. X is ranged from 0 through 31.

set ringtype X

Set types of ring. X is ranged from 0 through 3: 0: ring as ordinary rings in different frequency; 1: do not ring; 2: ring as music saved by user; 3: Set ring used the individualized tone provided by system (need system support).

set speakerin X

Set initial volume of microphone of the base. X is ranged from 0 through 15.

set speakerout X

Set initial volume of speaker out. X is ranged from 0 through 31.

set dialplan X

Enable/disable dial plan and dial number. Parameter X ranged from 0 through 4: 0: disable dial plan; 1: enable dial plan; 2: use dial number; 3: use 179XX service.;4: use hotline function.

set dialnumber XX

When set dialplan value set as 2, please use this command to set dial number. For example, with eTalk card used, please set it as 00. When set dialplan value set as 4, please use this command to set hotline number.

set dddcode XX

Set the area code when set dialplan value set as 1 or 2. For example, the area code of Beijing is 10; the area code of Shanghai is 21, and the area code of Chengdu is 28, etc. Parameter xxx must be an Arabic numeral and no longer than 3 characters.

set iddcode XXX

Set the country code when set dialplan value set as 1 or 2. For example, the country code of China is 86; the country code of USA is 1, etc. Parameter xxxx must be an Arabic numeral and no longer than 4 characters.

set iddprefix XX

Set IDD service prefix number when set dialplan value set as 1 or 2. For example, IDD service prefix number of china is 00; IDD service prefix number of USA is 1, etc. Parameter xxx must be an Arabic numeral and no longer than 3 characters.

set dddprefix XX

Set DDD service prefix number when set dialplan value set as 1 or 2. For example, DDD service prefix number of china is 0; DDD service prefix number of USA is 1, etc. Parameter xxx must be an Arabic numeral and no longer than 3 characters.

set innerline X

Set use innerline call or not. X ranged from 0 through 1: 0: disable; 1: enable innerline call.

set innerlinepreifx X

With innerline set as 1[enable] , please set the prefix to pick up inner line, such as 0.

set callwait X

Set whether to use call wait. X ranged from 0 to 1: 0: do not use call wait; 1: use call wait.

set fwdnumber XXXXXXX

Set receiving forwarded calls phone number. XXXX must be an Arabic numeral and no longer than 16 characters

set fwdalways X

Enable/disable forward all calls. X is ranged from 0 through 1. 0: do not forward all calls; 1: forward all calls.

set fwdbusy X

Enable/disable forward calls if busy. X is ranged from 0 through 1. 0: do not forward calls if busy; 1: forward call if busy.

set fwdnoanswer X

Enable/disable forward calls without replying. X is ranged from 0 through 1. 0: do not forward calls without replying; 1: forward call without replying.

set answer X

Set the ring seconds before the phone answers the call auto or forward the calls. X is ranged from 0 through 60.

set digitmap X

Set whether to use digitmap. X ranged from 0 to 1: 0: do not use digitmap; 1: use digitmap.

---

set service X

Set register the SIP proxy server or not. X ranged from 0 through 1. 0: do not register; 1: register.

set registerttl X

Set register TTL. X is range from 10 through 65535 Sec. default

value is 60 Sec.

set service type X

Enable/disable the prepaid and service system .choose the repaid server provider. Parameter x ranged from 0 through 15:

0: common: disable repaid card or specially system ;

1: use huawei's system;

2: use ZTE's system;

3: use harbour's system;

4: use utstarcom's system;

5:use uptech system;

6: use keimen's system;

7: use meidaring's service;

8: use italkBB service;

9: use stanaphone service;

10: use net2phone SIP service;

11: use fwd(freeworlddialup) service;

12: use inphonex system;

13: use sipphone system;

14: use ngtel system ;

15: use ayctel system

16: use callserve system

17: use qmaster system

set sipproxy XXXX

Set IP address or domain name of SIP Proxy Server.

set domain/realm XXXXX

Set the domain name of SIP proxy server.

set nattraversal X

X ranged from 0 through 2: 0: do not use NAT traversal. When the log in server and IP phone in the same LAN, or the log in system supports the IP phone working behind the LAN; 1: Use NAT traversal. When the login system does not support IP phone working behind the LAN, With this item selected, please make port mapping on NAT device; 2: stun.

set nataddr XXXXX

When “nattraversal” is set to “1”;set IP address of NAT device wan port or URI of free assistant service (Such as www.showmyip.com etc.) in Internet.

When “nattraversal” is set to “2”, set IP address or URI of the stun server, in the format as “domain name/IP address : service port”. The default service port for stun is 3478.

NOTE The free service list of Internet：www.ip-calculator.com; www.ipchicken.com; www.ipchicken.com;www.showmyip.com;www.whatismyip.com; www.myipaddress.com; www.whatismyipaddress.com; ip.sbbs.net;

www.whatismyipaddress.net;checkip.dyndns.org

set natttl XX

Set NAT TTL XX is an integer between 10 and 65535 sec. default value is 20 sec.

set phonenumber XXXXXXXX

Set a local ID of PA168X IP phone. Value xxxxx must be an Arabic numeral and no longer than 16 characters.

set account XXXXXX

Set the account; Value xxxxxx must be an Arabic numeral and no longer than 32 characters.

set pin XXXXXXXXXX

Set the account; Value xxxxxx must be an Arabic numeral and no longer than 32 characters.

set registerport XXXX

Set register port. Value XXXX default is 5060.

set rtpport XXXX

RTP port is the port transferring and receiving voice flow using UDP protocol. XXXX is an even number between 1024 and 65535.

set tos X

Set TOS segment of IP head package in RTP digital follow. X is range from 0 through 224.

set dtmf X

Set DTMF relay type. X is ranged form 0 through 2: 0: inband audio ; 1: rfc 2833 ; 2: sip info.

set dtmf payload X

When dtmf X select 1(rfc 2833).This parameter can be used indicating type of RTP payload type. The value can be use integer 96-101.

set prack X

Set enable/disable support pre-ack(RFC3262) . X is ranged form 0 through 1: 0: disable ; 1: enable.

set outboudproxy X

Set enable/disable Outbound proxy support. X is ranged form 0 through 1: 0: disable ; 1: enable.

When X is 1(enable) , please set the URI of the Outbound proxy into “sip proxy” and set the domain name of SIP proxy server into “domain/realm”. The default service port is 5060.

---

set superpassword XXXX

Set super password of the PA168X IP phone. XXX must be ASCII characters.

set debug X

Set open debugging message output grade for special tool. X is ranged from 0 through 5: 0: close debugging output; 1: output the operation information to the window; 2: output all the bug information and data in test window; 3: save the bug information into SDRAM; 4: disable checks the mark.

set password XXXX

Set password of the PA168X IP phone. XXX must be ASCII characters.

set upgradetype X

Set auto-upgrade matching type , X is range from 0 through 5 , 0------disable ; 1------all ; 2------ mac ; 3------ppp id; 4------ account; 5------ phone number。

set upgradeaddr XXX.XXX.XXX.XXX

Set IP address or domain name of FTP server supplying upgraded program of PA168X IP phone.

set sntpip XXX.XXX.XXX.XXX

Set IP address of time server.

set daylight X

Set use daylight or not. X ranged from 0 through 1: 0: do not use daylight; 1: use daylight.

set timezone XX

Set time zone.

- Command store

Syntax description: no keyword. Parameter ranged from 0 through 4.

Usage: Save the current settings to the designated position.

Relevant Usage: store 1

- Command load

Syntax description: no keyword. Parameter ranged from 0 through 4.

Usage: Load the designated settings to the current position.

Relevant Usage: load 1

Command exit

Syntax description: no keyword and parameter

Usage: Exit from Telnet command window without saving the configuration.

Relevant usage: None

- Command write

Syntax description: No keyword and parameter

Usage: Save the configuration and restart the PA168X IP phone.

Ø Command ping

Syntax description: ping IP address

Usage: ping IP address of other NAT device

Relevant usage: In telnet window, input ping xx.xxx.xx.xx（an IP address） and return, then the result will be displayed. If the address is effective, “ping OK” will be seen; if the address is ineffective, nothing will be seen. Fox example:

```
P:\>ping 203.93.9.57
P:\>
ping OK
P:\>ping 27.56.120.56
P:\>
```

Note Usually, the echo time of ping command is no more than 1 second. So if the result is not displayed in 5 seconds, ping command is fail.

Ø Command ftp

Syntax description: ftp value

Usage: the system connects to the FTP server auto to get the corresponding file and deal with it.

Relevant usage: ftp X

X ranged from 0 through 2:

X-0: Connect to FTP Server to get the file of updating program and save it to the SDRAM of the phone. Then the file can be read by

PalmTool. This operation aims at testing.

X-1: Connect to FTP Server to get the file of updating program and update program Flash. This operation aims at updating program.

X-2: Connect to FTP Server to get the file of updating dial rules and update program Flash. This operation aims at updating dial rule.

✎**Note** When you use ftp 0 and ftp 1 commands, if the file get from FTP server is too large or the net speed is too slow, then the process will not be seen in telnet window. Please be patient. Using ftp command in telnet to get file spends almost same minutes as getting file using phone. So if nothing is displayed after too long time, it means that ftp is fail.

✎**Note** All the Telnet commands of PA168X IP phone should be written in low case and the password is case sensitive.